

# TOP1-3BE3

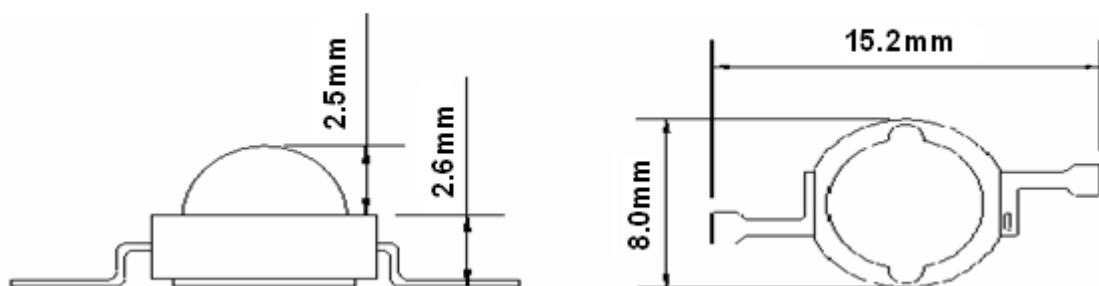
## High Power LED

Part Number	Chip		Lens Color
	Material	Source Color	
TOP1-3BE3	InGaN	Blue	Water Clear

### Features

- High brightness blue LED round package.
- Light output intensity grade Viewing angle 135 degree.
- Light color Blue.
- RoHS compliant.

### Dimensions



#### Notes:

1. All dimensions are in millimeters (mm).
2. Tolerance is  $\pm 0.25$ mm unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.
4. Specifications are subject to change without notice.

## Absolute Maximum Rating @ Ta=25°C

Parameter	Maximum Rating	Unit
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	700	mA
Power Dissipation	3	W
Continuous Forward Current	700	mA
Reverse Voltage	5	V
Operating Temperature Range	-20°C to +60°C	
Storage Temperature Range	-20°C to +60°C	
Soldering Temperature [1.6mm(.63" )From Body]	360°C for 5 seconds	

## Electrical / Optical Characteristic @ Ta=25°C

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Flux	$\emptyset$	35	-	45	lm	$I_F=700\text{mA}$
Viewing Angle	$2\theta_{1/2}$	-	135	-	deg	$I_F=700\text{mA}$
Forward Voltage	$V_F$	3.0	-	3.4	V	$I_F=700\text{mA}$
Dominant Wavelength	$T_c$	460	-	465	K	$I_F=700\text{mA}$
Spectral Line Half-Width	$\Delta\lambda$	-	27	-	nm	$I_F=700\text{mA}$
Reverse Current	$I_R$	-	-	10	$\mu\text{A}$	$V_R=5\text{V}$

# Typical Electrical / Optical Character Curves

Fig.1 Relative intensity Vs. Wavelength

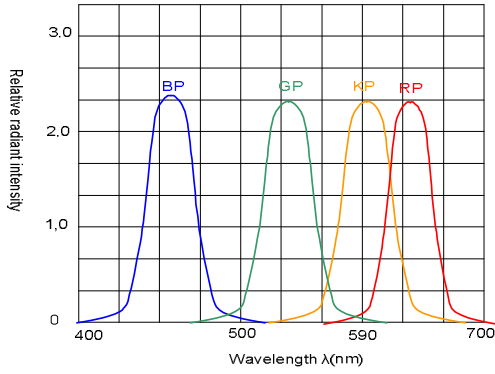


Fig.2 Forward current Vs. Forward voltage

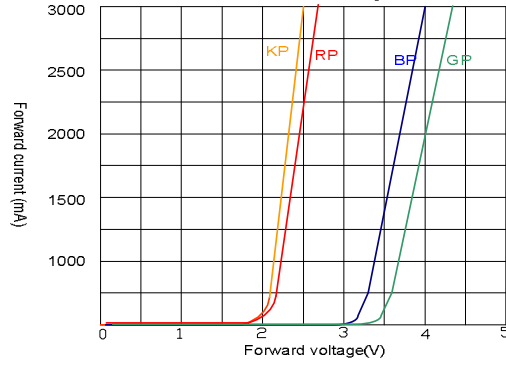


Fig.3 Relative luminous intensity Vs. Forward current

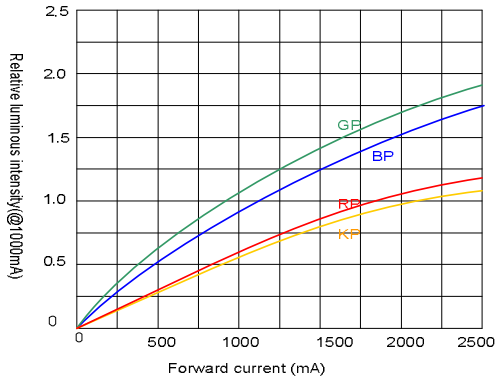
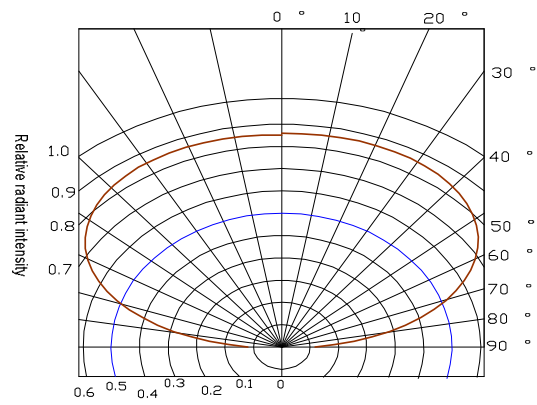
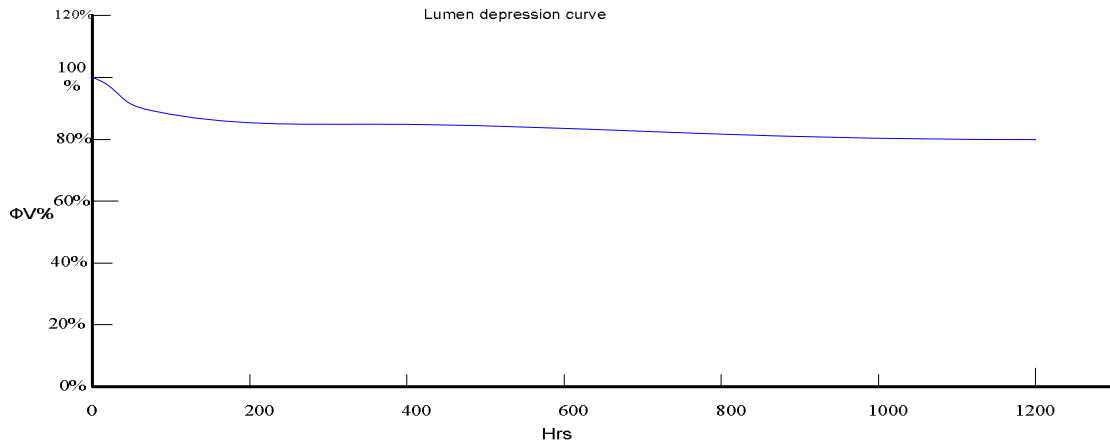


Fig.4 Radiation diagram



Lumen depression curve



# Application of high-power LED products

High power LED products and devices in the application process, heat dissipation, electrostatic protection, welding has a great influence on its properties, applications need to be attaches great importance to the end customers.

## 1. Heat dissipation :

In the application of high-power LED products, we need to do the heat dissipation best to ensure that the LED products are working properly.

- Heat dissipation plate of requirements :

External and material: if the of finished product seal requirement is not high enough, it can be convected directly with the outside air environment, and it is recommended that the aluminum or copper strip with fins be used.

## 2. Effective heat dissipation surface area :

For the 1W high power LED white light (the other colors are basically the same), we recommend that the total surface area of the heat dissipation plate is greater than 50 to 60 square centimeters. For 3 w products, recommend effective heat dissipation fin a total surface area of 150 square centimeters, or a higher power product increase depending on the situation and the experiment results, keep heat dissipation plate temperature less than 60 °C.

## 3. Joint method :

High-power LED substrate when connected to the heat dissipation plate, please ensure smooth surfaces, good contacts, in order to strengthen the combination of the two contact surfaces, advice in LED substrate or at the bottom of the heat sink surface coating a layer of thermal conductive silicone (silicone coefficient of thermal conductivity of thermal conductivity is 3.0 W/m.k or higher), thermal conductivity silicone requires uniform coating and right amount, with a fixed screw press.

## 4. Electrostatic protection

Leds are semiconductor devices that are sensitive to static electricity, especially for white, green, blue, and purple leds to prevent static electricity generation and to eliminate electrostatic work.

### 4-1. The occurrence of static electricity :

- Friction: in daily life, any two objects of different material contact after the separation, can produce static, and the one of the most common method of generation of static electricity is the electrification. The better the insulation of the material, the easier it is to produce electricity. In addition, any two objects of different substances can be separated after contact and can produce static electricity.
- Induction: in view of the conductive material, because electrons can flow freely in its surface, such as to be put in an electric field, due to the same, opposites attract, the positive and negative ions will move, can produce electric charge on the surface.
- Conduction: in the case of conductive material, the electrons can flow freely on its surface, such as contact with charged objects, and charge transfer.

#### 4-2. The effect of static electricity on leds :

- The resulting heat from an electric field or current caused the LED to be partially injured, showing a rapid increase in the leakage current and still working, but the brightness was reduced and life was damaged.
- An electric field or current that damages an LED's insulation layer, causing the device to be unable to work (completely damaging) and is a dead lamp.

#### 5. Static protection and elimination method :

For the whole process (production, testing, packaging, etc.) all the employees who have direct contact with the LED should be prepared to prevent and eliminate electrostatic measures, mainly including:

- The workshop laid antistatic floor and good ground.
- The workbench is to prevent electrostatic table, the production machine platform needs to be ground is good.
- The operator should wear antistatic clothing, antistatic bracelet, gloves or foot ring.
- Welding the soldering iron must be ground.
- Use antistatic materials for packaging.

#### 6. Soldering :

Please note that the best choice when welding the thermostat soldering iron, the welding temperature is below 180 °C, confirm the soldering iron and the LED solder contact there is no problem.